

**REMARKS**

Since the proposed amendment of December 16, 2004 was not entered, the foregoing amendments address the claims resulting from the amendment entered September 30, 2004, i.e., claims 1-9, 11- 18 and 25-35 and the grounds of rejection set forth in the final action mailed October 19, 2004 as well as the advisory action mailed January 5, 2005. Claim 1 is objected to under 35 USC §§132 and 112, and all of the claims stand rejected variously under 35 U.S.C. 102 and/or 103, and on the basis of double-patenting. New claims 36 –38 are added herewith to make the multiple dependency of claim 35 unnecessary.

Objection to the Specification, the September 30 amendment and the Rejection of Claims 1-9 and 11 under 35 USC §112 1<sup>st</sup> paragraph re: new matter

The objection to the September 30, 2004 amendment and the rejection of claim 1 regarding new matter added by the introduction of the term ‘substantially’ has been rendered moot by the foregoing amendment to claim 1.

Rejection of claims 1-9, 11, 18 and 25-35 under 35 USC §112, 2d paragraph

The above-reference claims stand rejected as providing insufficient antecedent basis for the limitations “pad section” and “bridge section.” Claims 1, 12 and 18 have been amended to obviate this ground of rejection. The basis of rejection based on the phrase “substantially free of tungsten” has also been rendered moot by the amendment to claim 1.

Rejection of Claims 1-8 and 11-18 and 25-32 Under 35 U.S.C. §102

The above-identified claims stand rejected under 35 U.S.C. 102 as being anticipated by the PCT international patent application PCT/US97/07490 of Bernardo Martinez-Tovar (“Martinez-Tovar (PCT)”). As set forth in the Advisory action, the Examiner now asserts that neither claim 1 nor claim 18 are distinguishable from Martinez-Tovar (PCT), because the claims only exclude tungsten on semiconductor material, “on” requiring contact with the semiconductor material, and Martinez-Tovar (PCT) does not show tungsten “on,” i.e., in contact with, the semiconductor material.

This ground of rejection has been rendered moot by the foregoing amendment to claim 1, by which a layer of tungsten is expressly excluded from the bridge section, without exception as to whether the tungsten is in contact with the semiconductor material.

Claim 18 also excludes a layer of tungsten due to the phrase "consisting essentially of," which excludes tungsten as shown by Martinez-Tovar (PCT), for reasons previously asserted and currently maintained by the Applicant. The Examiner has provided no basis on which to limit the exclusionary effect of this phrase to tungsten layers in contact with the semiconductor material.

For the reasons stated above, both claims 1 and 18 define semiconductor bridge igniters that have a bridge structure that includes a layer of titanium disposed over a semiconductor material without tungsten as shown by Martinez-Tovar (PCT). The invention is patentable because the prior art does not teach or suggest a metal layer on a semiconductor bridge that contains titanium without tungsten, or the ensuing advantages that were realized by the Applicant by excluding the tungsten from titanium. Only the Applicant has disclosed and claimed an igniter device in which a semiconductor bridge is covered with a layer of titanium to the exclusion of tungsten.

Since the prior art fails to teach the use of titanium metal without tungsten, both claims 1 and 18 may properly be left open to the inclusion of metals in addition to titanium, with claim 18 being open only to other elements that will not defeat that basic and novel characteristic of the invention, as previously asserted by the Applicant.

To further justify rejecting the claims, the Examiner pointed out that the prior art shows that semiconductor bridge igniter devices with tungsten metal layers thereon can function effectively. However, the Applicant has not asserted that a layer of tungsten on a semiconductor bridge device will render the device non-functional, nor is any such assertion necessary to support the patentability of the claims. Claims 1 and 18 are patentable because the prior art fails to show or suggest the use of titanium on a semiconductor bridge igniter without tungsten. For this reason, the asserted claims, which define SCB devices having a layer of titanium from which tungsten is excluded, are patentably distinct from Martinez-Tovar (PCT).

The Examiner has also asserted that the specification is not enabling for any metal other than titanium. This ground of rejection is respectfully traversed because the only metal that the claims require is titanium, and the specification is clearly enabling for titanium. In

addition, by comparison to titanium alone and to the prior art (titanium with tungsten), a person of ordinary skill in the art can determine, without undue experimentation, whether a particular added metal defeats the basic and novel characteristic of this invention by imposing the energy requirements that tungsten does for initiating of the device. For the foregoing reason, the stated ground of rejection of claims 1-11 and 18-20 is respectfully traversed.

Claims 25 through 32 have been canceled, but claim 25 has been re-written in dependent form as new claim 36. Claim 36 limits the layer of metal of the bridge section to titanium. Since this claim does not encompass other metals, the stated ground of rejection is moot as to this claim.

Claim 12 defines a semiconductor bridge igniter having a layer of titanium over a bridge of semiconductor material, wherein the titanium has been preconditioned against temperature-induced variations in resistance. The preconditioning of titanium is nowhere disclosed by Martinez-Tovar (PCT). The Examiner cites Martinez-Tovar (PCT) at page 5, lines 13-20, but this passage teaches away from annealing the combined titanium-tungsten layer disclosed therein. Furthermore, Martinez-Tovar (PCT) says that annealing was previously practiced in connection with aluminum and tungsten (see page 10, lines 4-23), not titanium. Accordingly, there appears to be no basis on which to maintain that Martinez-Tovar (PCT) discloses a semiconductor bridge having a titanium layer that is preconditioned as defined in claim 12.

The grounds of rejection under 35 USC §102 are thus respectfully traversed.

#### Rejection of Claims 9, 33 and 34 Under 35 U.S.C. §103

Claims 9, 33 and 34 stand rejected under 35 U.S.C. §103 as being obvious over Martinez-Tovar (PCT) in view of U.S. Patent 4,976,200 to Benson et al ("Benson"). Benson is cited for disclosing the use of undoped silicon substrate in a tungsten bridge device.

Claims 9 is allowable at least because it depends from base claim 1, which is allowable for reasons set forth above. Accordingly, the stated ground of rejection is respectfully traversed. Claims 33 and 34 have been canceled, rendering the stated rejection moot.

#### Double Patenting Rejection

Claims 1-8, 11-18, 20, 25-32 and 35 stand rejected under the judicially-created doctrine of obviousness-type double patenting in view of claims 1, 3, 4, 5-9, 12-20 and 36 of

U.S. Patent 6,133,416 to Martinez-Tovar et al ("Martinez-Tovar (US)"), the U.S. equivalent of Martinez-Tovar (PCT).

Among the claims of Martinez-Tovar (US) cited as the basis of the double patenting rejection, there are three independent claims, claims 1, 14 and 36. Each of these claims, and the other cited claims dependent therefrom, defines a semiconductor bridge device having, on the bridge section, a base layer comprised of titanium and a top layer comprised of tungsten.

For reasons set forth above, claims 1, 18 and 36 (which corresponds to the now-canceled claim 25), and the claims dependent therefrom, are patentably distinct from a device comprising a layer of tungsten on the bridge portion of the semiconductor bridge on top of a layer of titanium. Furthermore, as discussed above, nothing in Martinez-Tovar (US) indicates that the titanium in the claimed devices is preconditioned, as required by claim 12. For this reason, the stated grounds of rejection are respectfully traversed.

Each of the stated grounds of rejection have been addressed or traversed. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,



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